

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
8 April 2004 (08.04.2004)

PCT

(10) International Publication Number
WO 2004/030143 A1

(51) International Patent Classification⁷: **H01Q 1/32, 1/38**

(74) Agent: **BIBLE, Patrick, M.**; Klarquist Sparkman, LLP,
One World Trade Center, Suite 1600, 121 SW Salmon
Street, Portland, OR 97204 (US).

(21) International Application Number:
PCT/US2003/030453

(22) International Filing Date:
26 September 2003 (26.09.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/414,606 27 September 2002 (27.09.2002) US

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): **RADI-ALL ANTENNA TECHNOLOGIES, INC.** [US/US];
1161 NE 50th Avenue, Vancouver, WA 98668 (US).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **GRANT, Gary, W.** [US/US]; 13685 S. Carus Rd., Oregon City, OR 97045 (US). **SHERMAN, Douglas, W.** [US/US]; 4488 County Road 68, Auburn, IN 46706 (US).

Declaration under Rule 4.17:

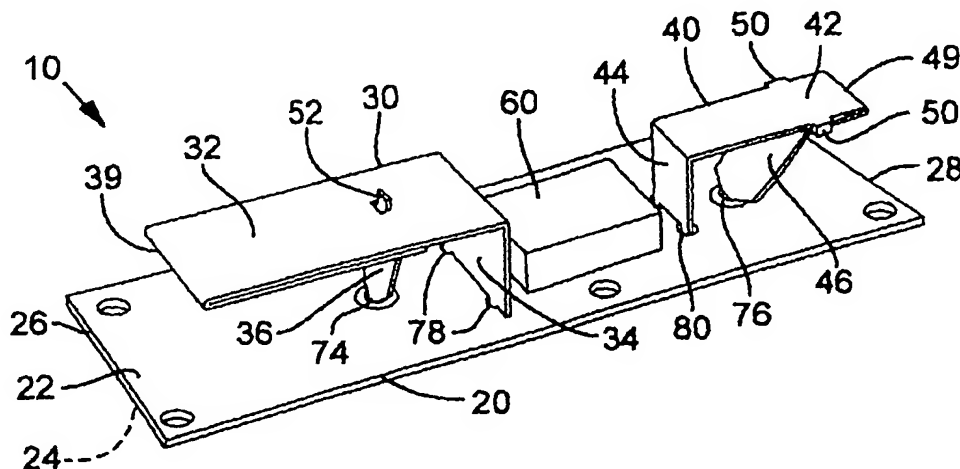
— *of inventorship (Rule 4.17(iv)) for US only*

Published:

— *with international search report*

[Continued on next page]

(54) Title: **COMPACT VEHICLE-MOUNTED ANTENNA**



(57) Abstract: A compact, vehicle-mounted antenna (10) is disclosed. In one embodiment, a first and second antenna elementS (30, 40) are positioned on a conductive ground plane (Fig. 1). The antenna elements can comprise platforms supported by a ground (34) and a feed (36). The antenna elements can be tuned to various bands (e.g., cellular or PCS). At least one additional antenna element (e.g., a GPS receive antenna (60)) can be positioned between the two antenna elements. One of the feeds of the antenna elements can be angled so that the antenna element has a desired height (e.g., a height matching the other antenna element). The antenna elements can be electrically connected to a transmission line (116) via a single feed line.

WO 2004/030143 A1